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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/512,032	02/24/2000	Akira Egawa	35.C14311	5722
5514	7590	12/15/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			YODER III, CHRISS S	
			ART UNIT	PAPER NUMBER
			2612	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/512,032	Applicant(s) EGAWA, AKIRA	
	Examiner Chriss S. Yoder, III	Art Unit 2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8 and 9 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 25, 2005 has been entered.

Claim Objections

Claim 8 is objected to because of the following informalities:

Claim 8 recites the limitation that "each of said **second** transfer units continuously transfers second signals from said sensor array in a light projection OFF state to the second transfer units at different timings respectively", in lines 10-13. However, the examiner believes that this limitation should read that "each of said **first** transfer units continuously transfers second signals from said sensor array in a light projection OFF state to the second transfer units at different timings respectively", and will be examined as understood by the examiner.

Appropriate correction is required.

Response to Arguments

Applicant's arguments filed November 25, 2005 have been fully considered but they are not persuasive.

Applicant argues that Egawa does not disclose a photoelectric conversion apparatus of the present invention that is arranged so that a first transfer unit (e.g. CCD1 in Fig. 5) continuously transfers first signals from a sensor array in a light projection ON state to a ring-shaped second transfer unit (e.g. CCD2 in Fig. 5), and alternately continuously transfers second signals from the sensor array in a light projection OFF state to the ring-shaped second transfer unit, at different timings respectively. The examiner disagrees, the first transfer unit can be seen in figure 6, element 94, which continuously transfer the light projection ON state to the ring-shaped second transfer unit, 96 (the ring-shaped second transfer unit, as claimed, is interpreted to be the combination of the linear CCD 96 and the connected ring CCD; for example, as seen in figure 10, the linear CCD 217 and ring CCD 218 are one continuous transfer unit), and alternately continuously transfers a light projection OFF state to the ring-shaped second transfer unit (each projection state is continuously transferred until each state is completely transferred, switching between ON and OFF states at different timings).

Applicant also argues that Egawa does not disclose that a transfer frequency of the ring-shaped second transfer unit is higher than that of the first transfer unit. The examiner disagrees, in Figure 7, the transfer frequency of the ring-shaped second transfer unit, SH, has a higher frequency than the first transfer unit, ST.

Applicant also argues that, in Egawa, the element 94 does not continuously transfer signals to the element 96 which continuously transfers signals to a ring CCD, and thus Egawa's element 94 is distinguishable from the first transfer unit recited in

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claims 1 and 8. The examiner disagrees, the first transfer unit can be seen in figure 6, element 94, which continuously transfer the light projection ON state to the ring-shaped second transfer unit, 96 (the ring-shaped second transfer unit as claimed, is interpreted to be the combination of the linear CCD 96 and the connected ring CCD; for example, as seen in figure 10, the linear CCD 217 and ring CCD 218 are one continuous transfer unit), and alternately continuously transfers a light projection OFF state to the ring-shaped second transfer unit (each projection state is continuously transferred until each state is completely transferred, switching between ON and OFF states at different timings).

Applicant also argues that in the Egawa reference, the CCD 96 and ring CCD connected thereto are driven by the same transfer clocks CK1 and CK2, and thus even if the claimed first transfer unit could be read on the element 96 of the Egawa reference, this reference fails to disclose the claimed feature of the transfer frequency in claims 1 and 8. The examiner disagrees, and points out that the CCD 96 is considered to be the ring CCD, therefore, it is inherent that the CCD 96 and ring CCD would have the same transfer clock, and the examiner also points out that the first transfer unit is not read on element 96, but rather element 94 (the ring-shaped second transfer unit as claimed, is interpreted to be the combination of the linear CCD 96 and the connected ring CCD; for example, as seen in figure 10, the linear CCD 217 and ring CCD 218 are one continuous transfer unit).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3, 5-6, and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Egawa et al. (US Patent # 5,808,726).
2. In regard to claim 1, note Egawa discloses the use of a sensor array for receiving reflected light (figure 6: 91), a first transfer unit arranged to transfer signals from the sensor array (figure 6: 94), a second ring-shaped transfer unit arranged to integrate the signal from the first transfer means (column 4, line 13-15; and figure 6: 96), the first transfer unit continuously transfers signals from the sensor array in light projection ON and OFF states to the ring-shaped second transfer unit at different timings respectively (figure 7; each pulse of SH transfers the charge from the first to the second transfer unit; i.e. the first OFF signal is transferred from transfer unit, 94, to second transfer unit, 96, during the first pulse in SH, and the ON signal is transferred from transfer unit, 94, to second transfer unit, 96, during the second pulse in SH), and wherein a transfer frequency of the ring-shaped second transfer means is higher than that of the first transfer means (figure 7, SH has a higher frequency than ST).
3. In regard to claim 2, note Egawa discloses that each timing of the first transfer unit has a phase different from that of the second transfer means (figure 7, SH has a different phase than ST).

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4. In regard to claim 3, note Egawa discloses that the second transfer unit comprises a skimming unit arranged to determine skimming on the basis of the second signal and a pixel for which skimming is determined skimming by a combination of light projection ON and OFF states (column 3, lines 29-36).
5. In regard to claim 5, note Egawa discloses that integration starts from the first signal (column 3, lines 19-25; figure 7: CK1, the integration is driven by the clock pulses in the ring shaped transfer unit and starts from the first signal).
6. In regard to claim 6, note Egawa discloses that the light projection repeatedly alternates the ON and OFF states (figure 7: IRED).
7. In regard to claim 8, note Egawa discloses the use of a light projection unit arranged to project light to an object (figure 9: 415), a plurality of sensor arrays for receiving reflected light (column 6, lines 35-39; and figure 9: 410 and 411), a plurality of first transfer units arranged to transfer signals from said plurality of sensor arrays (figure 6: 91 and 94; the signals from the sensor array, 91, are transferred to the first transfer units, 94), a plurality of ring-shaped second transfer units arranged to integrate the signals from the plurality of first transfer units (figure 6: 94 and 96; the signals from the first transfer units, 96, are transferred to the second transfer units, 96), the first transfer unit continuously transfers signals from the sensor array in light projection ON and OFF states to said respective ring-shaped second transfer unit at different timings respectively (figure 7; each pulse of SH transfers the charge from the first to the second transfer unit; i.e. the first OFF signal is transferred from transfer unit, 94, to second transfer unit, 96, during the first pulse in SH, and the ON signal is transferred from

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transfer unit, 94, to second transfer unit, 96, during the second pulse in SH), wherein a transfer frequency of the second transfer unit is higher than that of the first transfer unit (figure 7, SH has a higher frequency than ST), and a distance measuring unit arranged to measure a distance using a difference signal between the first signal and the second signal from the second transfer unit (column 6, line 65 –column 7, line 2).

8. In regard to claim 9, note Egawa discloses that each timing of the first transfer unit has a phase different from that of the second transfer means (figure 7, SH has a different phase than ST).

Allowable Subject Matter

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As for claims 7, the prior art does not teach or fairly suggest the use of skimming that is inhibited when a light projection OFF signal goes ahead of a light projection ON signal in integration of the signal in the second transfer unit.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chriss S. Yoder, III whose telephone number is (571) 272-7323. The examiner can normally be reached on M-F: 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CSY
December 8, 2005



NGOC YEN VU
PRIMARY EXAMINER